

REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-5, 7-19 and 21-30 are pending in the present application. Claims 1-3, 5, 7, 9, 11, 13, 15-17, 19, 21, 23, 25, 27 and 29 are withdrawn from consideration. Claims 4, 14, 18, 28 and 30 are amended by the present amendment.

In the outstanding Office Action, claims 4, 14, 18, 28 and 30 were rejected under 35 U.S.C. 103(a) as unpatentable over Kataoka et al. (U.S. Patent No. 4,561,717, herein "Kataoka") in view of Shiraishi et al. (U.S. Patent No. 5,774,249, herein "Shiraishi") and Takayama (U.S. Patent No. 6,459,520).

Claims 4, 14, 18, 28 and 30 were rejected under 35 U.S.C. § 102(b) as anticipated by Kataoka in view of Shiraishi and Takayama. That rejection is respectfully traversed.

Amended independent Claim 4 is directed to an optical scanning device that includes a plurality of scanning optical systems configured to scan different scanning surfaces. Each of the scanning optical systems include a light source, a deflector, a plurality of scanning lenses, an optical path inflection mirror, and an imaging lens. The light source is configured to emit a light flux. The deflector is configured to scan the light flux emitted from the light source. The deflector is commonly used in the plurality of scanning optical systems. The plurality of scanning lenses are configured to condense the scanned light flux to the scanning surface. The optical path inflection mirror is configured to inflect the scanned light flux and to decrease an amount of change in a relative scanning position of each scanning optical system caused by a temperature fluctuation in the plurality of scanning optical systems. The imaging lens includes a resin lens and is configured to lead the light flux emitted from the light source to the deflector. The plurality of scanning optical systems are provided in a sub-scanning direction. A difference in a number of optical path inflection mirrors between two

of the plurality of scanning optical systems is set to zero or an even number. The optical path inflection mirror is non-movable in position and configured among the plurality of scanning lenses.

Amended independent Claims 14, 18, 28 and 30 include similar features regarding an optical path inflection non-movable in position and configured among a plurality of scanning lenses to inflect the scanned light flux and to decrease an amount of change in a relative scanning position of each scanning optical system caused by a temperature fluctuation in the plurality of scanning optical systems.

In a non-limiting example, Figure 2 illustrates that optical path inflection mirrors Ma1, Ma'3, Ma'1, Ma'2, Mb1, Mb2, Mb'1 and Mb'2 are non-movable in position and configured among the scanning lenses 5A, 5A', 5B, 5B', 6A, 6A', 6B and 6B'. Further, in a non-limiting example, Figures 1, 2 and 7 illustrate that a change of an optical axis due to a temperature fluctuation is decreased by the optical scanning device shown in Figure 1.

Applicant recognized that a resin lens may be substituted for a glass lens to reduce the associated cost due to the material itself and processing of the material (page 2, lines 10-13). Applicant also recognized that a resin lens has a high linear expansion coefficient as compared to a glass lens resulting in a degradation of a produced image caused by temperature fluctuations (page 2, lines 14-22; and page 3, lines 6-10). Therefore, the claimed devices decrease a change of an optical axis due to a temperature fluctuation resulting from the use of a less expensive resin lens.

Kataoka does not teach or suggest an optical path inflection non-movable in position and configured among a plurality of scanning lenses to inflect the scanned light flux and to decrease an amount of change in a relative scanning position of each scanning optical system caused by a temperature fluctuation in a plurality of scanning optical systems. In particular, Kataoka does not teach or suggest decreasing the amount of change in a relative scanning

position of each scanning optical system caused by a temperature fluctuation. Instead, Kataoka teaches an optical system for separating a plurality of laser beams from each other (abstract).

Shiraishi and Takayama also do not teach or suggest an optical path inflection non-movable in position and configured among a plurality of scanning lenses to inflect the scanned light flux and to decrease an amount of change in a relative scanning position of each scanning optical system caused by a temperature fluctuation in a plurality of scanning optical systems. Instead, Takayama discloses an angled mirror 7 as a correcting means which is arranged to be movable in two directions as indicated by "a" and "b" arrows (Figure 9; and column 12, lines 16-32). Takayama also discloses that the angled mirror 7 is moved to correct the image deviation occurring with temperature change (Figure 9; and column 12, lines 35-44). Thus, unlike the claimed invention that includes an optical path inflection mirror non-movable in position and configured to decrease an amount of change in a relative scanning position of each scanning optical system caused by a temperature fluctuation in a plurality of scanning optical systems, Takayama discloses a movable angled mirror to correct the image deviation occurring with temperature change. Further, Takayama is directed towards decreasing an amount of change in the scanning position in the main-scanning direction, while the Applicant's claimed invention is directed towards decreasing an amount of change in the scanning position in the sub-scanning direction. Shiraishi also does not teach or suggest an optical path inflection mirror configured among a plurality of scanning lenses.

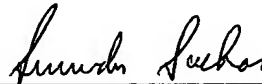
Accordingly, it is respectfully requested this rejection be withdrawn for similar reasons as discussed above.

Thereby, each of independent Claims 4, 14, 18, 28 and 30, and the claims dependent therefrom, patentably define over Kataoka, Shiraishi, and Takayama.

Consequently, in light of the above discussion and in view of the present amendment, the present application is believed to be in condition for allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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